

What is PA 66 GF30 natural

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PA 66, glass-fibre reinforced 30 %

PA 66 GF30 natural is a polyamide 66 reinforced with 30 % glass fibres. The reinforcement considerably increases stiffness, strength and heat deflection temperature and improves dimensional stability – for components under continuous high mechanical and thermal stress.

Properties

PA 66 GF30 natural is a semi-crystalline polyamide with embedded short glass fibres. The fibres significantly increase stiffness, strength and hardness compared to unreinforced PA 66, reduce thermal expansion and raise the heat deflection temperature to 150 °C. Moisture absorption is lower than for the unreinforced material, so dimensional stability remains good even in humid environments.

The price for the high stiffness is a lower elongation at break; the glass fibres are also abrasive to tools and mating surfaces.

Advantages

- High stiffness, strength and hardness
- Very high heat deflection temperature (HDT 150 °C)
- Good dimensional stability, lower moisture absorption
- High continuous service temperature

Disadvantages

- Low elongation at break, more brittle than unreinforced PA 66
- Glass fibres are abrasive to tools and mating surfaces
- Not generally declared for food contact (see FDA declaration)

Processing

PA 66 GF30 natural can be machined using all conventional cutting methods. Because of the abrasive glass fibres, carbide tools are recommended; sharp cutting edges and good cooling via chip removal avoid softening or smearing of the surface caused by heat build-up.

Glass-fibre-containing dust generated during machining should be extracted. For tight tolerances, we take swelling and shrinkage behaviour into account and condition the semi-finished product where required.

For sliding applications against soft mating surfaces, the abrasive effect of the glass fibres must be taken into account; for pure sliding components we recommend unreinforced or lubricant-modified grades where required.

Typical Applications

PA 66 GF30 natural is used wherever high stiffness, dimensional stability and heat deflection temperature are required – for example in mechanical engineering, the electronics industry, aerospace and vehicle construction.

- Rigid housing and support parts
- Dimensionally stable guide and functional elements
- Thermally stressed structural parts

Typical Properties

- High stiffness and strength
- Good dimensional stability
- High heat deflection temperature

Product Examples

- Housing and support parts
- Guide and functional elements
- Thermally stressed structural parts

Typical Industries

- Mechanical Engineering
- Electronics Industry
- Aerospace
- Vehicle Construction

	Test Method	Unit	Value
General Properties			
Density	DIN EN ISO 1183-1	g / cm ³	1.32
Water absorption	DIN EN ISO 62	%	1.70
Flammability (Thickness 3 mm / 6 mm)	UL 94		HB / HB
Mechanical Properties			
Yield stress	DIN EN ISO 527	MPa	100
Elongation at break	DIN EN ISO 527	%	5
Tensile modulus of elasticity	DIN EN ISO 527	MPa	5.000
Notched impact strength	DIN EN ISO 179	kJ / m ²	6.0
Ball indentation hardness	DIN EN ISO 2039-1	MPa	210
Shore hardness	DIN EN ISO 868	scale D	86
Thermal Properties			
Melting temperature	ISO 11357-3	°C	260
Thermal conductivity	DIN 52612-1	W / (m * K)	0.24
Thermal capacity	DIN 52612	kJ / (kg * K)	1.50
Coefficient of linear thermal expansion	DIN 53752	10 ⁻⁶ / K	50
Service temperature, long term	Average	°C	-20 ... 120
Service temperature, short term (max.)	Average	°C	200
Heat deflection temperature	DIN EN ISO 75, Verf. A, HDT	°C	150